II. *An Account of the external Maxillar, and other Salivary Glands: Alſo of the Inſertions of all the Lymphaticks (as well above as below the Subclavians) into the Veins; which Glands and Inſertions have not hitherto been mention'd, or not truly deſcribed by any Authors.*

By Richard Hale, M. D. Reg. Soc. *&* Coll. Med. Lond. Soc.

THE external Maxillar Glands in Brutes are of the Conglomerate kind. They lie externally, laterally (lengthways) on the lower Jaw, partly under the *Depreſſor Labiorum*, and partly under the *Buccinator*. A ſtrong Membrane intervenes between theſe Glands and the Jaw on one ſide, and between them and the Buccal Glands on the other ſide. They are more or leſs red (like the *Pancreas*) according to the quantity of Blood that remains in them, otherwiſe their Subſtance is white.

Theſe Glands receive Arteries from the external Carotids, Veins from the external Jugulars, and Nerves from the third Branch of the *Par Quintum*.

The Number of excretory Ducts from theſe Glands, is not always the ſame, in the ſame ſpecies of Animals. In Cows generally fourteen are diſcovered by the Probe. Their Orifices are valvular, about four times leſs than their Ducts. Every Duct is about half an Inch from the next. Thoſe in the middle of the Glands are largeſt, becauſe the Glands are there broadeſt and thickeſt. The Ducts don't communicate with one another, nor with the Buccal. Every Duct is made of leſſer Ducts united, which riſe from the Lobules (thro' the whole ſubſtance of the Glands)

Glands) which conſtitute each diſtinct Lobe, and has the ſame ſtructure as the Pancreatick Duct. Each Lobe is depreſſed on its ſides, where it is joined to other Lobes; and between the Lobes many Buccal Glands are interſperſed.

In Calves ſeldom more than ſix or ſeven Ducts admit any Probe; when the Animal grows older, the Ducts appear more plain and open.

In Sheep ſix excretory Ducts are always found in each external Maxillar Gland.

In Dogs and Cats, *&c.* theſe Ducts are fewer, in proportion to the ſmallneſs of the Glands. 'Tis obſervable that theſe Ducts in Dogs open obliquely towards the Mouth, whereby the *Saliva* may be better mixt with the Food in Maſtication; which might be ſwallowed unmixt from another ſtructure of Ducts, in theſe Animals that ſwallow greedily.

Dr. *Wharton* * firſt mentions the external Maxillar Glands. What he ſays of them, is applicable only to their appearance in Men, in which Subjects they are of the Conglobate kind, and very ſmall, unleſs in Scrophulous and Venereal Caſes. 'Tis plain that he had not ſeen them in Brutes; for in his Figures (which were drawn from Brutes) no notice is taken of theſe Glands. He deſcribes them as very ſmall, and calls them Emunctories of the Nerves, which was the Notion (in his time) concerning the uſe of the Conglobate Glands; and the Saliva was ſaid † *è Nervoſo Genere profundi.*

⁎ *Steno* juſtly blames *Blaſius* for aſcribing to the external Maxillars an Excretory Duct opening into the Mouth, like the common one from the Parotid Gland. Yet *Steno* (otherwiſe very accurate) does not truly deſcribe theſe Glands, nor diſtinguiſh them from the Buccal, tho' they are as diſtinct from the Buccal, as the Sublinguals are from the internal Maxillars. *Steno* divides his Buccal into 3 Parts. The large Ducts in a Line riſe from the external Maxillars; and how diſtinct theſe Glands are from the Buccal appears plainly in Fig. 17th, *&c.* *Steno*'s 2d part of the Buccal, [*] *intra quæ, & in mediâ parte*, are mark'd *e e*, in Fig. 14. *quæ alias*, &c. higher are the ſame *e e*, among the *Papillæ*. The third Part *quæ à ſuperiore deſcendunt*, are *a b c d*.

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* *Cap.* 21.

† *Cap.* 21. *pag.* 134.

⁎ *Obſ. Anat. p.* 14.

The external Maxillars differ from the Buccal, in bigneſs, figure, ſtructure, particular number of Ducts, colour, *&c.* The Buccal, Labial, internal Maxillar, and ſublingual Glands, are of a yellow Colour; beſides the Buccal are ſeparated from the external Maxillars by a ſtrong Membrane. Indeed many of the Excretory Ducts of the Buccal Glands open near the Ducts of the Maxillars (from whence *Steno* confounded theſe Glands) but they do ſo likewiſe round his own Ducts from the Parotids; and ſome Ducts from like Glands open near the Sublinguals, as alſo about *Nuck*'s Ducts, in which places the Buccal Ducts are moſt numerous.

In ſhort, there is a very great Number of Excretory Ducts diſperſed all over the Membrane, that inveſts the Mouth, *Fauces*, *&c.* which riſe from Glands that lie under this internal Membrane. Theſe Glands are more numerous in ſome Parts than others, and receive different Names, according to the Part they belong to; as Labial, Buccal, Palatine, *&c* But theſe are ſmall Glandules with one Excretory Duct, and tho' they ſeparate Saliva like the large Conglomerate Glands, Parotids, Maxillars, *&c.* yet they differ from theſe in Conſtructure, one common Excretory Duct, *&c.* Whereas the external Maxillars differ from all the other Glands of the Mouth, *viz.*

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[*] *Pag.* 18.

by many ways from the Buccal, beſides their Colour ; in which particular, they are alſo diſtinguiſhed from the internal Maxillar and Sublingual Glands ; they differ alſo from theſe as well as from the Parotids, in having a great number of common Excretory Ducts. This number of Excretory Ducts was not obſerved by *Steno*, nor did he know that theſe Ducts in the ſame Line, were the Excretory Ducts of large Conglomerate Glands (like the Parotids) diſtinct from the Buccal.

Bartholine[*] mentions the external Maxillar Glands, but does not deſcribe them. *Nuck*[†] only gives them a Place in his Catalogue of Glands, but takes no farther Notice of them, tho' he writes a [⁎] Book chiefly about a new Salival Duct riſing from a Gland, that is found in no Animal beſides a Dog.

Mr. *Cowper* had never ſeen theſe external Maxillar Glands, as appears by a Letter of his (now by me) written above Twenty Years ago, in anſwer to one I ſent him upon the firſt diſcovery of theſe Glands. The external Maxillars in Men (of the Conglobate kind) are marked *g*, in the firſt Figure of his *Myotomia Reformata*.

The Ducts of the external Maxillar Glands are oppoſite to the Orifices of *Steno*'s Ducts ; from which Glands and Ducts, as alſo from the Buccal, Labial, and Gingival Glands, the Saliva flows from all parts of the Mouth without the Teeth. From *Wharton*'s and the Sublingual Ducts, from the Tonſils, *Fauces*, *Fretum Stenonis*, Gingival, Lingual and Palatine Glands, the Saliva is derived, from the upper and lower, former and hinder parts of the Mouth within the Teeth.

What has been ſaid of theſe Salivary Glands, *&c.* will be beſt underſtood by the following Figures, which were drawn for me in *October*, 1697. at *Trin. Coll. Oxon.* by Mr. *Burghers*, and have been lately compared with the Parts themſelves in Cows, Calves, *&c.* Theſe Figures are part of many more taken from Preparations at the ſame time, which were figured in the ſame Order as drawn. This is the Reaſon that the Cuts are marked in this manner, and it can't be of uſe to alter theſe Marks and Numbers.

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[*] *Pag.* 542.

[†] Adenol. *p.* 5. *n.* 11.

[⁎] Sialog. *p.* 15. 158.

The Inſertions of all the Lymphatick Veſſels into the Veins can be diſcovered but in few Subjects, and no Figure has yet been given of them.

Theſe Figures ſhew the Courſe of the *Lympha* both below and above the Subclavians in Men, and Axillars in Dogs. The *Lympha* below the *Receptaculum Chyli* is conveyed from all the inferiour Parts by a great number of ſmall Lymphatick Veſſels, which uniting with others obliquely above the Valves, become bigger in proportion, till at length they conſtitute two large Trunks near the Emulgents, which are the *Pedunculi* or Beginnings of the *Receptaculum Chyli.* The *Lympha* from the Parts above the Subclavians, is derived in like manner from leſſer Lymphaticks, to the common Ducts that are here delineated.

I know *Pecquet* has given a Cut of the Thoracick Duct in a Dog; which Duct is double from the Receptacle, and is inſerted by four Branches into each Axillar. I believe with * *Bartholine*, (who has borrowed this Figure from *Pecquet*) that ſuch an Inſertion is a *Luſus Naturæ.* For tho' the Thoracick Duct may be double, and is ſometimes divided into two Parts near the Subclavians, yet generally it is ſingle, the *Lympha* from all parts on both ſides the Body being carried by proper Lymphæducts into one common Thoracick Duct, that conveys this Liquor, together with the Chyle from the Lacteals, into the left

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* Barth. *p.* 616, 620.

Subclavian

Subclavian Vein, by one, three, or more Branches. For there is as great a variety in the number of theſe Branches, as in the places of their Inſertion.

Mr. *Cowper* injected the Thoracick Duct in a Humane Subject, and has given a Figure of that Preparation in his Book of Anatomy. But this Figure is imperfect, and the Inſertion of the Thoracick Duct ſo ill drawn, that little can be learnt by it. However, no Anatomiſt has given any Cut, that demonſtrates the Inſertions of the Lymphaticks from both Arms and both ſides of the Head, *&c.* above the Subclavian Veins, which appear ſo plain in theſe Figures, that no Deſcription can make them plainer.

Explanation of the Figures.

Fig. 12. Demonſtrates the Paſſages, or Veſſels, by which the Chyle and *Lympha* paſs into the Veins of a Dog.

12, 12 Thoſe Lymphaticks that bring *Lympha* from the Thighs and lower Parts.

13, 13 Are lateral Lymphaticks ariſing from the Groin, Teſticles, and neighbouring Parts.

14 The Receptacle of the Chyle.

15 An Indenture in the Receptacle, thro' which paſſes one Tendon of the Diaphragm.

16 Lymphaticks from a neighbouring Gland.

17 Some Lymphaticks from the Diaphragm.

18 An Artery that ſerves the Loins, and runs through a Diviſion of the Receptacle.

19 The *Pancreas Aſellii.*

20 The *Vaſa Lactea 2di Generis.*

21 The beginning of the *Ductus Thoracicus.*

22 Some Divarications of the *Ductus.*

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* Barth. *p.* 620.

23 The Continuation of the *Ductus*, and its progreſs.

24 The *Aorta Deſcendens*. *N B.* 18, 24. by their Pulſation (and the Tendon at 15) much promote the Aſcent of the Chyle and *Lympha*.

25 A common Divarication of the Duct.

26 A Lymphatick from ſome neighbouring Gland.

27 A double Lymphatick from the ſecondary Gland 42, in *Fig.* 13.

28 That part of the *Ductus Thoracicus* where both its Branches, and the Lymphaticks from the left ſide of the Head and left Fore-Leg meet.

29 The Lymphaticks from the left ſide of the Head and left Fore-Leg united; they lie on the inſide of the Vein.

30 A Lymphatick with a Pin in it from a neighbouring Gland, perhaps the *Thymus*.

31 A Lymphatick from the Neck, *&c.* It is divided and enters the Jugular by two diſtinct Branches under the *Sacculus* 43.

32 The Lymphatick from the right ſide of the Head.

33 The Lymphatick from the right Fore-Leg.

34 The large *Sacculus*, or Receptacle of the *Lympha*, on the right ſide, that receives all the *Lympha* on that ſide, and conveys it into the Jugular.

35 The *Cava Deſcendens*.

36 The *Vena Mammaria*, which is ſometimes ſingle.

37 The *Venæ Subclaviæ*.

38 The *Vena Vertebralis*.

39 The Axillars.

40 The Jugulars.

41 The right internal Jugular not injected.

42 A ſmall ſecondary Lymphatick Gland on the back part of the top of the *Thorax*.

43 The *Sacculus*, that receives all the Chyle and *Lympha* from the whole Body (except 30, 31, 32, 33, 34.) and

and diſcharges it into the Vein: at leaſt we know of no other Lymphaticks that any where elſe enter the Veins.

44 A Lymphatick, (or Membrane, for 'twas not injected) that joins 29 to the largeſt Branch of the *Ductus Thoracicus*.

Fig. 13. Is the upper part of *Fig.* 12. revers'd, the Duct, *&c.* being turned up, that the Inſertion, both *Sacculi*, *&c.* may be better diſcovered.

This is to be explained by the preceding, and has only from 42 to 44 more Figures than the upper part of *Fig.* 12. has; all which are already taken notice of.

N. B. In this Subject the Chyle and *Lympha* are emptied into the Jugulars, and not into the Axillars; they are ſometimes emptied partly into the Jugular, and partly into the Axillar, or Subclavian. In Men generally into the Subclavian.

Fig. 14. Repreſents part of the Left Cheek of an Ox, ſeparated from the lower Jaw-bone, with the external Maxillar Glands, its Ducts, *&c.*

1, 2, 3, *&c.* to 14. Briſtles inſerted into the Ducts of the external Maxillary Gland *l l l.* Theſe Ducts open ſloping into the Mouth, for the better mixture of the *Saliva* with the Food.

15 The Duct 3 injected with Wax, to diſcover its diviſion and bigneſs, in reſpect of the Orifice.

16 A Lobulus of the Maxillar Gland. Its excretory Duct is filled with Wax, and ends at 15.

17 The Duct 1 laid bare and open'd, to ſhew its large Cavity, *&c.*

A A, Part of the Muſcles and Fat, *&c.* belonging to the lower Jaw.

B B, Part of the internal Membrane that inveſts the Mouth.

a b c d, Briſtles in thoſe Ducts of the Buccal Glands, *n n*, that I could paſs any into.

e e e, Thoſe

e e e, Thoſe Orifices of the Buccal Glandules, that were too little to admit Briſtles.

k k k, The *Papillæ* on the inſide of the Mouth.

l l l, The Lobes that conſtitute the external Maxillar Gland.

m m m, The Orifices of the Labial Glandules *p p*, that were too ſmall for paſſing Briſtles.

n n n, Buccal Glandules interſperſed between the Lobules of the Maxillar Gland.

n n n near *r r r*, Part of the Buccal Glandules, where they appear thickeſt, and are rais'd to diſcover the Ducts *r r r*, running under them.

p p p, The Labial Glandules like the Buccal. Mr. *Cowper* in *Fig.* 4. letters them H, H.

r r r, The Ducts mark'd 6, to 14. as they appear under the Glandules *n n*.

N. B. The ſame Numbers and Letters expreſs the ſame Things in the following Figures.

Fig. 15. Exhibits part of the left Jaw-bone and Cheek of a Sheep, where the Briſtles 1, 2, 3, *&c.* ſhew the conſtant number of excretory Ducts from the external Maxillary Gland in theſe Animals.

Fig. 16. Shews part of the right Cheek of a large Dog, taken from the lower Jaw-bone.

f, The Orifice of *Steno*'s Salival Duct.

g, The Orifice of *Nuck*'s Duct, which riſes as a *Papilla* on the Membrane B B.

h, *Nuck*'s new Duct, not found in Men, Oxen, or Sheep, but in Dogs, their Orbit not being entirely bony.

i, *Nuck*'s Gland.

o o o, The Orifices of ſome excretory Ducts, belonging to the external Maxillar Gland, that were too ſtrait for the admiſſion of Briſtles.

q q, The Teeth. In this Subject they are the Teeth of the upper Jaw; near the ſecond of which, the Orifice of *Nuck's* Duct appears.

Fig. 17. Demonſtrates the back part (next the Cutis) of the external Maxillar Gland of the ſame Dog, as 'tis beſet with the Buccal Glandules.

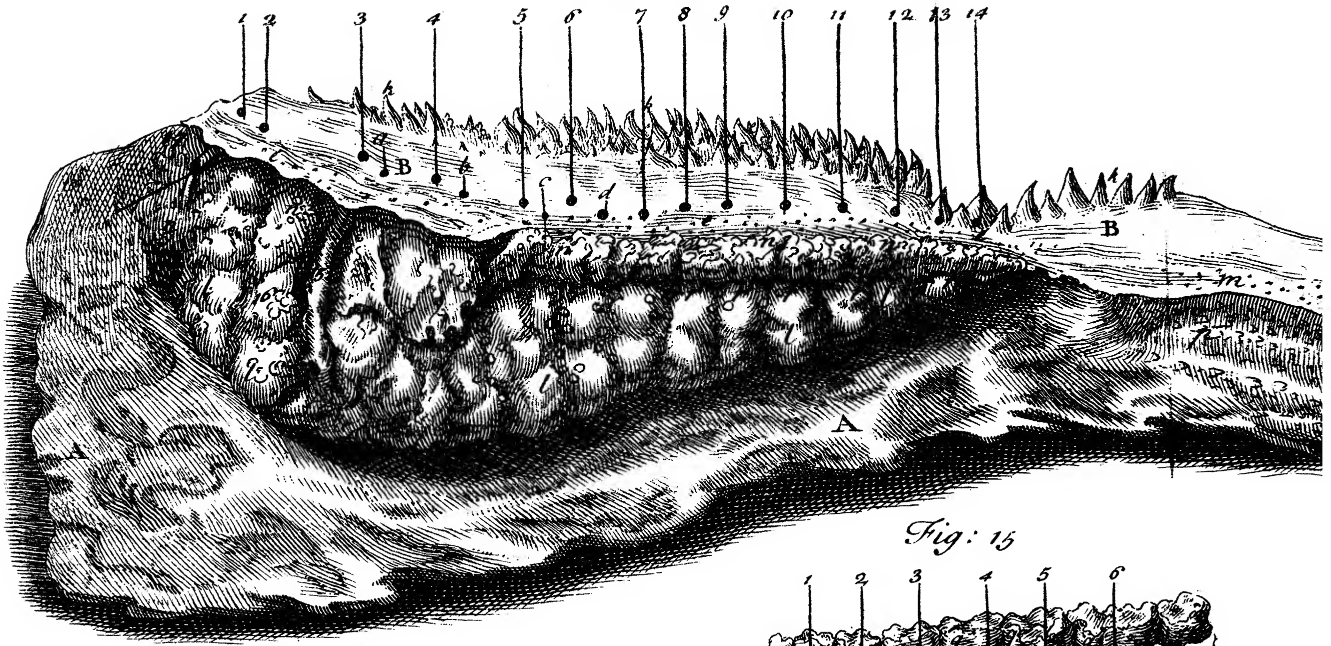
Fig. 18. Explains the external Maxillar Gland in the right Cheek of a Calf. In this Subject I could only probe two Ducts, *z*, *&c.* would not admit Briſtles.

III. *De Peſte* Conſtantinopoli *graſſante. Auctore nupero* V. Cl. Emanuele Timone, M. D. *Hoc ſcriptum ab Auctore Clariſſimo, qui* Conſtantinopoli *per multos annos Medicinam fecerat, Excellentiſſimo Ablegato* Britannico, Roberto Sutton, *Eq. Aurato, traditum, ejuſdem Equitis permiſſu, cum Societate Regia communicavit* R. Hale, M. D.

PEſtem *Conſtantinopoli* ex *Ægypto* communicatam tum hiſtoriis, tum quotidianâ obſervatione conſtat. Nidum tamen in hac urbe ſibi fecit, &, quamvis nunquam fere veteris Peſtis deſint ſeminia, novus etiam ſubinde fomes advehitur. Ab hyemali intenſo frigore ſatis bene ſopitur; emicant tamen hinc inde ſcintillæ aliquot hyeme & vere: æſtate incrementum ſumit; autumnali tempore ſummo flagrat incendio. Venti Aquilonares ſtatis temporibus æſtate flantes (Eteſiæ ſcil. hujus loci) quamvis frigidiuſculi ſint, veneni tamen peſtilentialis dilatationi haud obſiſtunt. Auſtrales ſatis calidi, ſi conſtanter flent, æſtivo tempore Peſtem ſupprimunt. Quoad ſymptomata Peſtis *Conſtantinopolitana* adamuſſim reſpondet peſti

Noviomagenſi

Fig: 14.



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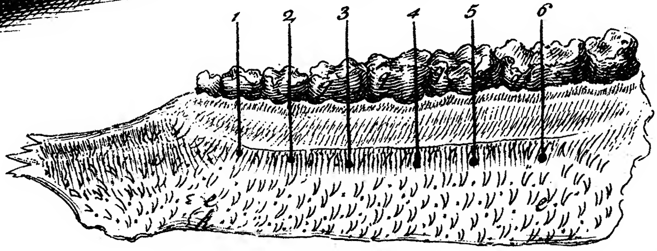

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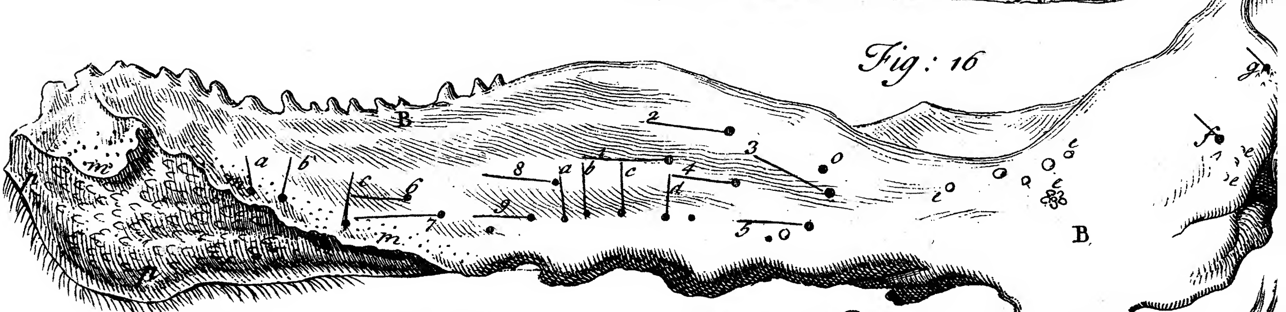

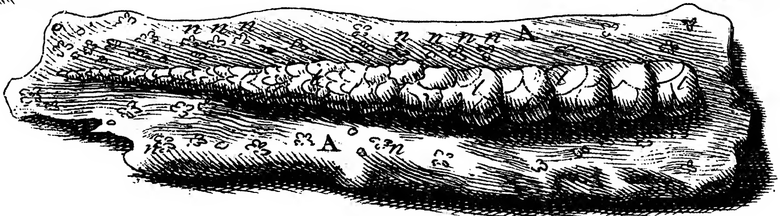

Fig: 17

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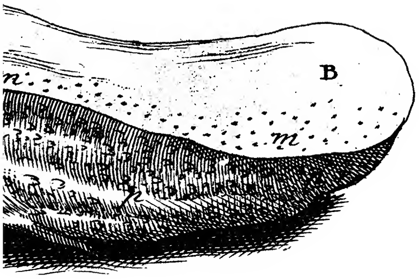

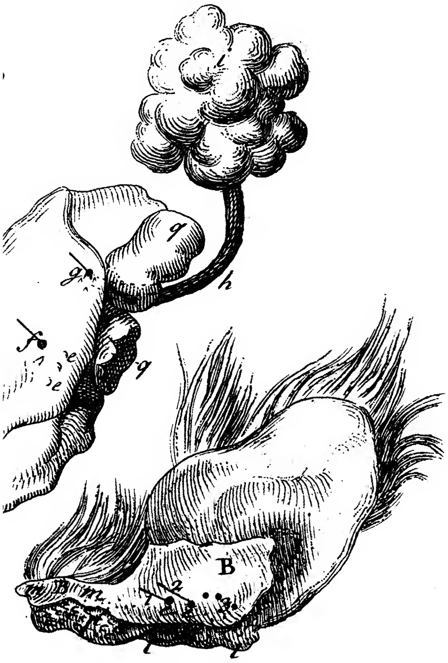

Fig: 18.

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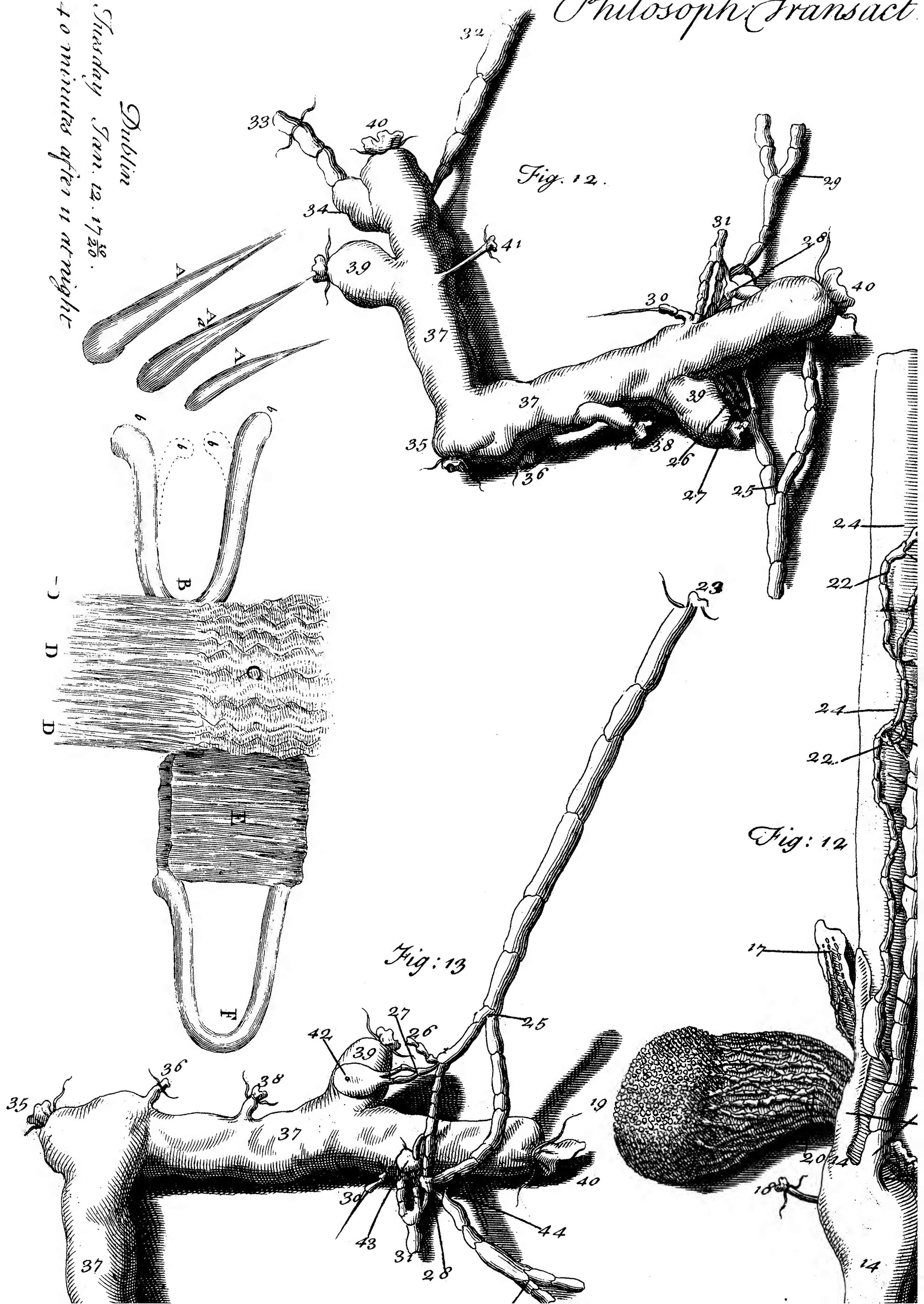

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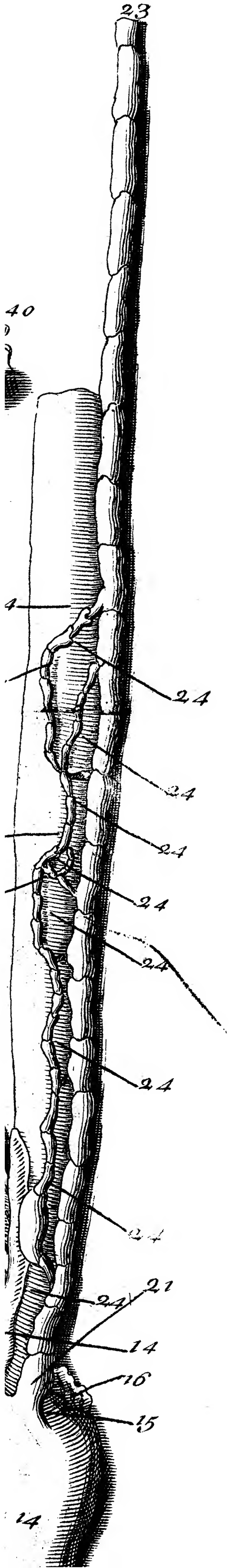

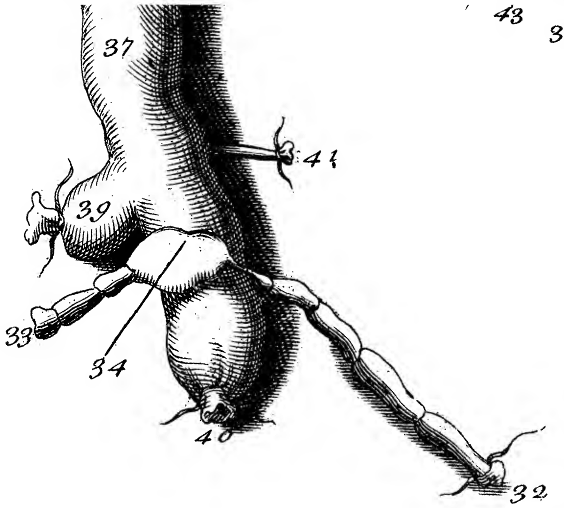

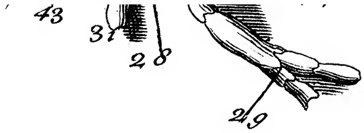

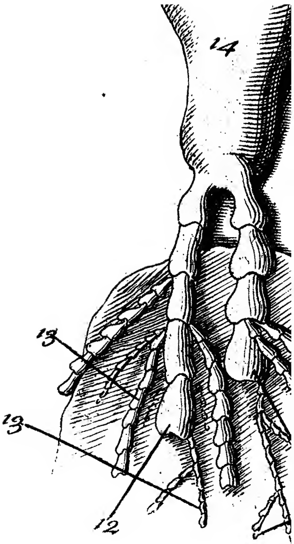

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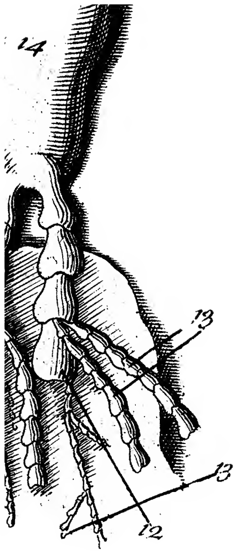

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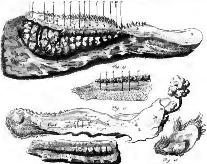

Fig 14

Fig 15

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Fig 18

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